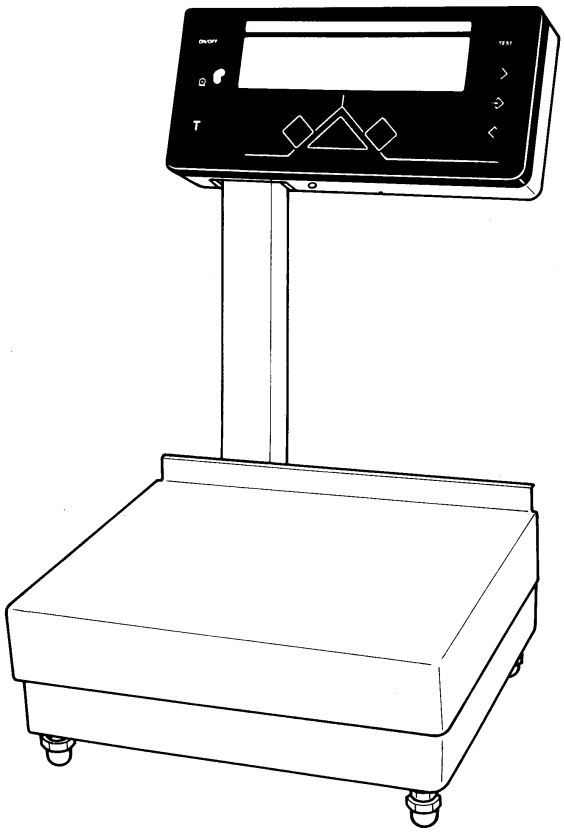
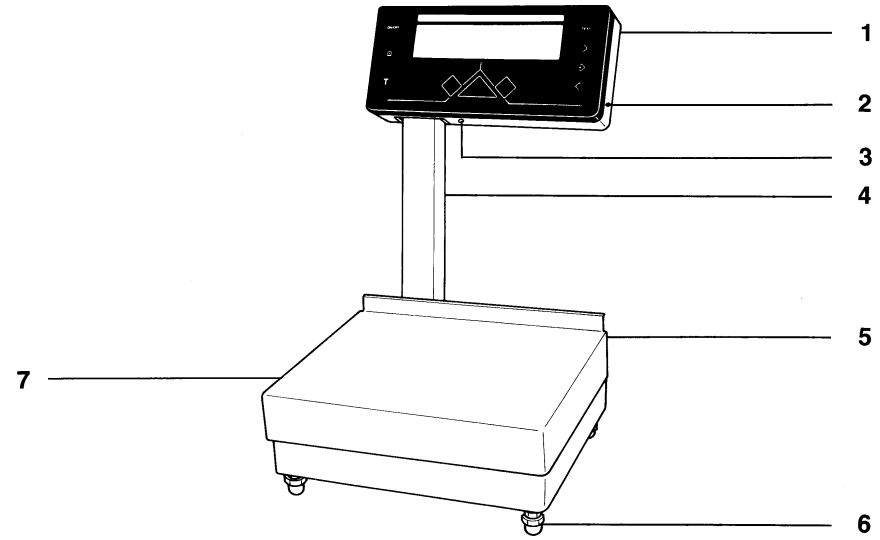
98648-001-40

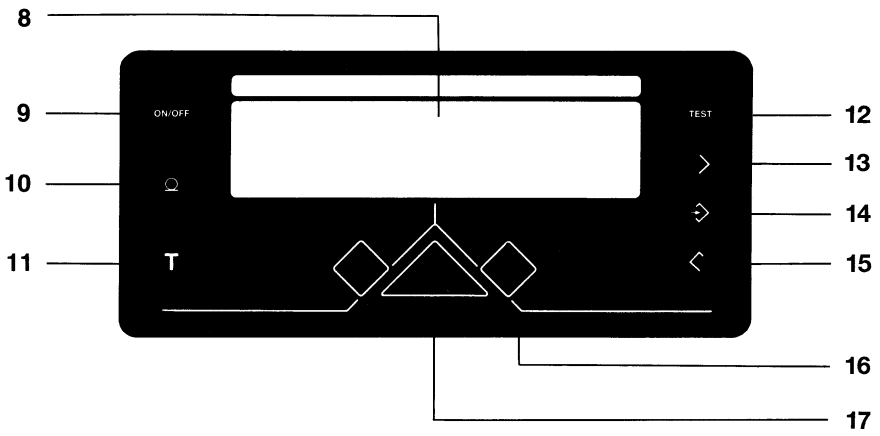
Sartorius
TS 6100B, TS 12



Electronic Over/Under Scales
Installation and Operating Instructions

sartorius





1 Display head
2 Lock
3 Jack for AC power
4 Support arm
5 Weighing platform
6 Leveling foot
7 Analog range indicator/weight display
8 ON/OFF key
9 PRINT key
10 Tare key (for zeroing the display)
11 Test key (full-segment display test)
12 Increase key
13 Set key
14 Decrease key
15 RED/GREEN/YELLOW indicators

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About the Product (Warranty)

With this Sartorius Scale you have acquired a high-quality electronic weighing Instrument that will ease your daily workload.

Please read these installation and operating instructions carefully before operating your new scale.

Pursuant to the German Directive for the Implementation of Regulations for Prevention of Accidents "Elektrische Anlagen und Betriebsmittel (VBG 4)" [Electrical Installations and Equipment] of April 1986, it is hereby certified that the equipment delivered, "Electronic Over/Under Scale, model TS 6100B or TS 12," is manufactured and tested in compliance with the following DIN/VDE regulations:

DIN IEC 348/VDE 0411
Safety requirements for electronic measuring apparatus

DIN IEC 380/VDE 0806
Safety of electrically energized Office machines

DIN IEC 601/VDE 0750
Safety of medical electrical equipment

and with Article 10 of the Low Voltage Directive 73/23/EEC issued on February 19, 1973, by the European Community.

When you use electrical equipment in installations and under ambient conditions requiring higher safety Standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.

Do not miss out on the benefits of our full warranty. Please complete the warranty registration card, indicating the date of installation, and return the card to your Sartorius dealer.

Storage and Shipping Conditions

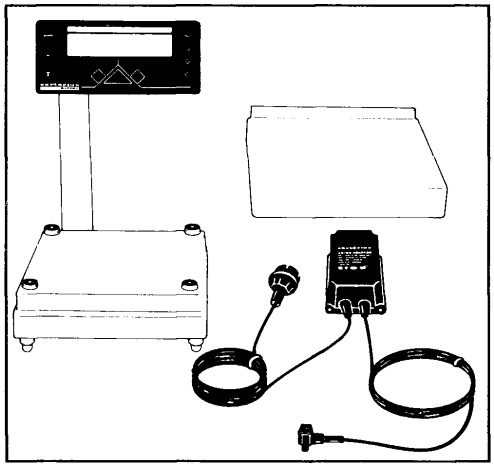
Storage temperature: -40°C... +70°C
-40°F... 158°F

After unpacking the scale, please check it immediately for any visible damage as a result of rough handling during shipment.
If this is the case, proceed as directed in the section entitled "Safety Inspection."

Save all parts of the packaging and the box because you may need to ship your scale.
Before you pack your scale to ship it, unplug all connected cables to prevent damage.

Do not expose the scale unnecessarily to extreme temperatures, moisture, shocks, blows or vibrations.

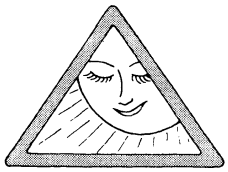
Equipment Supplied

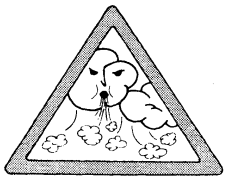


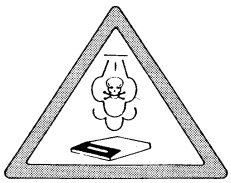
The equipment supplied includes the following components:

- Scale
- Weighing platform
- Power supply
- Key
- Set of brief instructions
- Instruction manual entitled "Installation and Operating Instructions"

Installations Instructions







Your Sartorius Scale will provide accurate readouts even when it is exposed to unfavorable conditions.

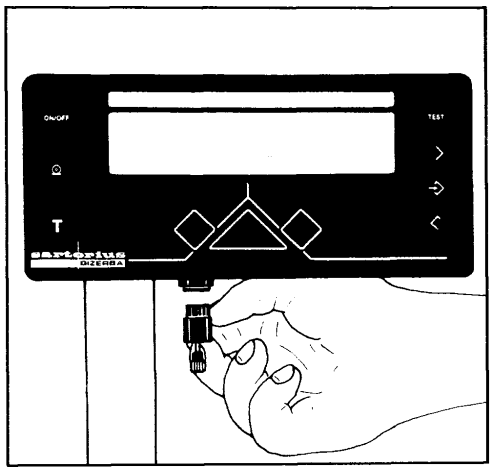
However, exposure to intensive heat radiation, vibrations and drafts may affect the weighing accuracy and should be avoided äs much as possible.

You can adapt the scale to your requirements simply by changing the menu code settings in the scale operating program.
For more information, see pages 23 through 29.

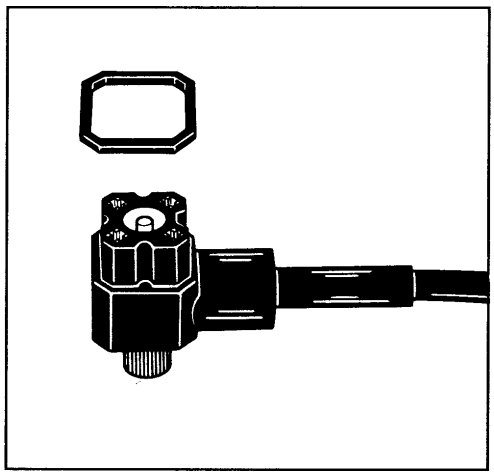
Startup

Place the weighing platform **(5)** on the scale.

Connecting the Scale to AC Power



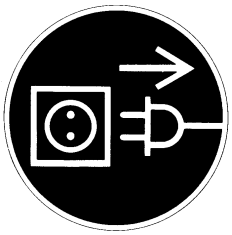
The scale is energized by an external power supply.
Make sure that the voltage rating printed on this unit is identical to your local voltage rating.
If the voltage specified on the label or the plug design of the power supply does not match the rating or Standard you use, please contact your Sartorius Office or dealer.
Insert the right-angle plug of the power supply in the AC jack as shown in the picture on the left. Tighten the screw by hand.



The IP 65 protection rating is guaranteed only if a rubber gasket is instalied and the plug is securely connected to form a leak-tight seal.

Then plug the power supply into a wall outlet.

Important Note:
Only use original Sartorius Power Supplies identified by the Sartorius label. Use of power supplies from other manufacturers, even if these units have a registered approval rating from a national testing laboratory, requires the consent of a certified Sartorius service technician.

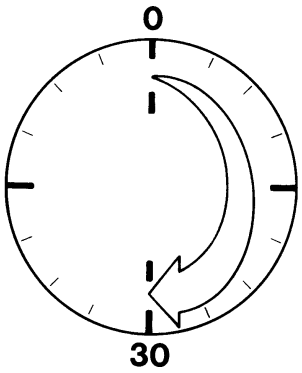


Connecting Electronic Devices (Peripherals)

Make sure to unplug the power supply from the wall outlet or from the scale before you connect or disconnect a peripheral device (printer or PC) to or from the interface port (Option).

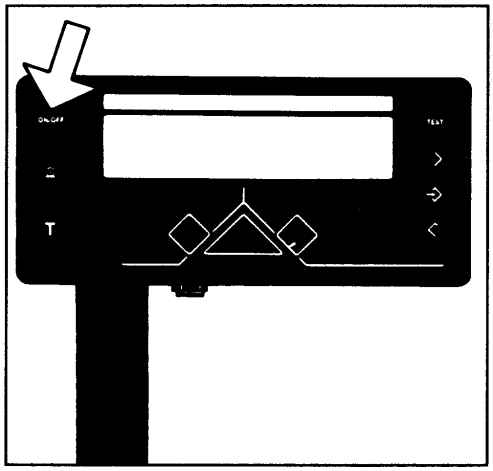
Safety Precautions

The power supply rated to Class 2 (double insulation) can be plugged into a wall outlet without taking any additional safety precautions. The pole (ground) of the Output voltage is connected to the scale housing (metallic parts), which can be grounded for Operation.
The interface (see "Interfacing Devices" on page 33 in addition) is also electrically connected to the scale housing (ground).



How to Operate the Scale

After initially connecting the scale to line power, allow for at least 30 minutes' warmup.



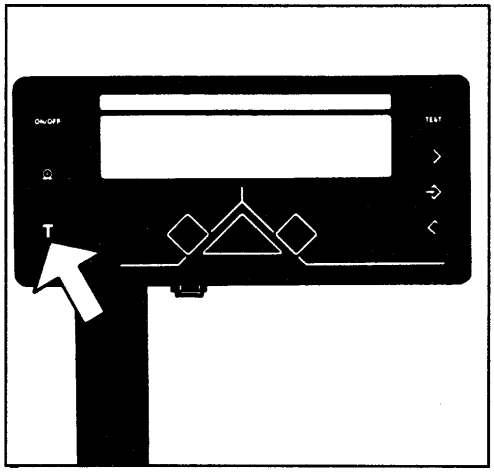
Turning the Display On and Off

Press the ON/OFF key **(8)** to turn the display on or off.

Self-Test

After the scale is turned on, an automatic self-test of the scale's electronic circuitry is performed. During this test, all segments briefly appear in the display (full-segment display test).

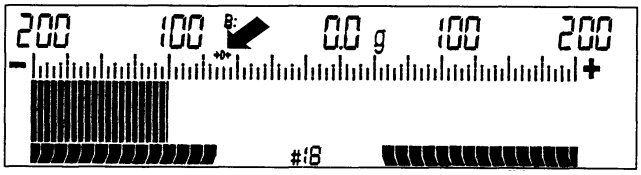
It ends with the readout of all set parameters.



Taring

If you wish to use a Container of if the weight display does not indicate "**0.0 g/0 g**" (or the equivalent with the weight unit of your choice), press the tare key before weighing.

The zero symbol (with arrows) **->0<-** in the weight display shows that the scale has been exactly tared so the display reads **"0"**.



Weighing

Place your sample on the weighing platform **(5)** to determine the weight.
Read off the weight indicated in the display **(7)** as soon as the motion detection symbol "~" above the plus/minus sign disappears.

In addition to grams, this scale gives you a variety of other menu-definable weight unit options.

Select the weight unit you desire from the fable on page 26 and change the code in the scale operating program (for this purpose, see pages 23 through 29).

Auto Zero

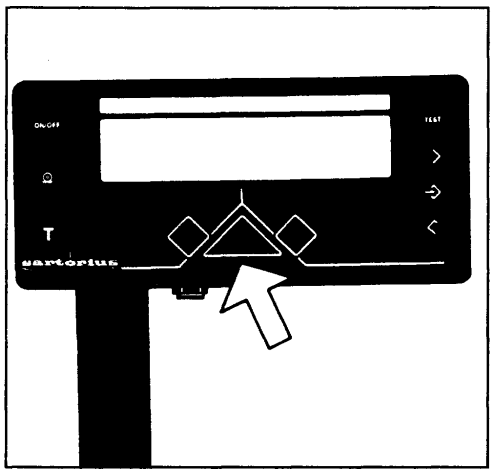
This scale has an automatic zero tracking function, known as "Auto Zero" (can be turned off by menu code - see "Scale Operating Program").
Any changes off zero <± 0.5 digit per second will be set to zero automatically.

Over/Under Checkweighing

Over/under checkweighing allows you to sort and classify products according to preset limits.

"Classification" means sorting samples based on their weight into classes with defined weight ranges.

RED/GREEN/YELLOW Indicators



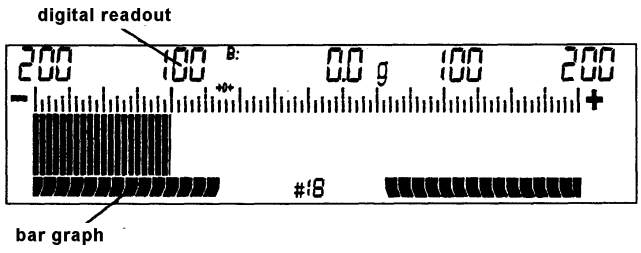
The RED/GREEN/YELLOW indicators are convenient visual aids.

When you weigh the object to be checked, one of these color-coded indicators will light up to indicate the Status of the sample as follows:

RED = the sample is underweight
GREEN = the sample is o.k. and within the preselected tolerance range
Yellow = the sample is overweight

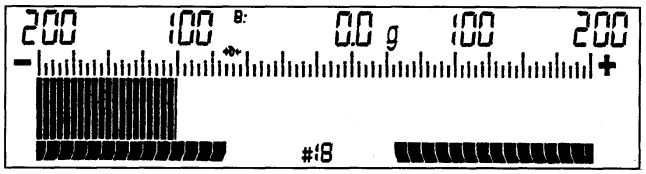
Wide Range Analog Indicator (Bar Graph)

At the same time, the wide range analog indicator, a bar graph, gives you additional information on your sample. The digital readout shows you the difference of the weight of your sample from the target weight (depending on the menu code set in the scale operating program) and the bar graph helps you weigh-in accurately.
In addition, you can define the mode of this wide band analog indicator to best meet your requirements.

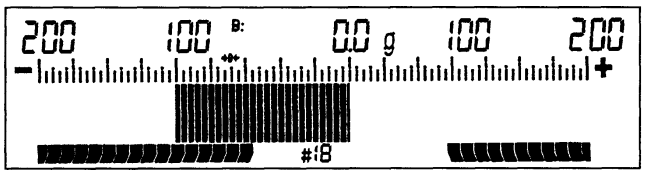


For example, for a target weight of 100 g, you can choose between

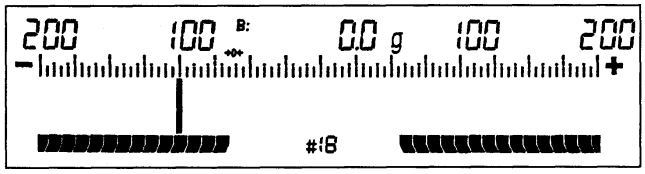
— a continuous bar graph that travels from the left to the right (for determination of a sample weight)



— a bar graph with a zero point = target weight (for determination of the difference in weight)



— and a "traveling marker."



The bar graph mentioned above can be shown in the following user-selectable application modes for the weight display. Depending on your choice of the display mode, set the appropriate menu code in the scale operating program (see pages 23 through 29).

	Without digital weight readout **code:** 3 2	With net weight readout **code:** 3 3	With readout of the difference in weight **code:** 3 4
Continues bar graph **code:** 9 6	X	X	X
Bar graph with zero point = target weight **code:** 9 7	X	X	X
Traveling marker **code:** 9 5	X	X	X
No bar graph	digital weight readout only **code:** 3 1		

The resolution of the display scale range depends on the parameter you have selected.

Starting from the target weight, the over and under range that can be displayed in either direction as follows:

	Weight unit in »g«	**Weight unit in »kg«**
TS 6100 B	± 20 g, ± 40 g, ± 80 g, ± 200 g	± 400 g, ± 800 g, ± 2 kg
TS 12	± 40 g, ± 80 g, ± 200 g	± 400 g, ± 800 g, ± 2 kg, ± 4 kg

Product ID Numbers and Product Data

Retrieving the desired Product ID Number

Press the ON/OFF key **(8)** to turn the scale on.

The product ID number that is selected at the moment will be displayed in the lower half of the weight display **(7)**.

To retrieve the desired product numbers, use keys **(12)** and **(14)**.

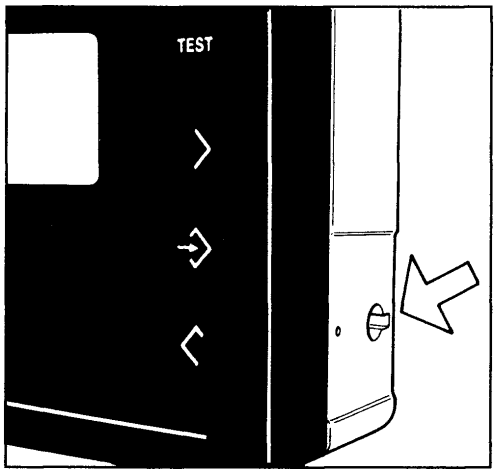
Changing Product Data

You can change and store the following for 12 different products:

- the product ID number (1...12)
- the target weight
- the scale divisions in the display
- the lower and
- the upper tolerance limits.

These data are stored in a non-volatile memory so you do not have to worry about a power outage.

The new product data are then available under the corresponding product ID numbers.



How to activate a product data function:

Press the key **(8)** to turn the scale on.

Clear the weighing platform.
With the scale turned off, hold down the key **(13)** and briefly press the key **(8)**.
When the readout is displayed, release the key **(13)**.

Changing the Product ID Number

First select the product ID number you wish to assign to a sample.

Caution:
Please keep in mind that all data stored under this ID number will be deleted if you change the ID number.

The # symbol will flash in front of the product number selected.

Use the key to increase the number or the key to decrease the number;

press the key labeled to store the selected number.

The program will automatically change to the next parameter.

Changing the Target Weight

The target weight depends on the menu code setting in the scale operating program.

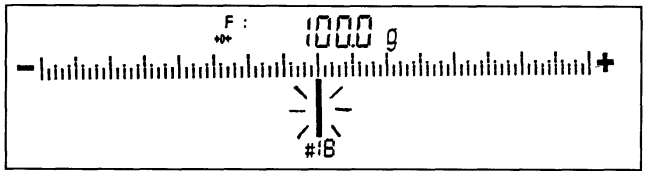
You can enter the target weight either by storing the weight of a sample on the platform or by numeric entry.

The following menu codes can be set in the scale operating program:

Code	
1 1 1	Only target weight by loading sample; retain same setting for over/under tolerance limits
1 1 2	Target weight by loading sample; over/under limits by loading underweight and overweight samples
1 1 3	Target weight by loading sample; over/under limits by numeric entries using keys
1 1 4	Not assigned
1 1 5	Only target weight by numeric entry using keys; retain same setting for over/under tolerance limits
1 1 6	Target weight by numeric entry using keys; over/under limits by loading underweight and overweight samples
1 1 7	Target weight by numeric entry using keys; over/under limits by numeric entries using keys

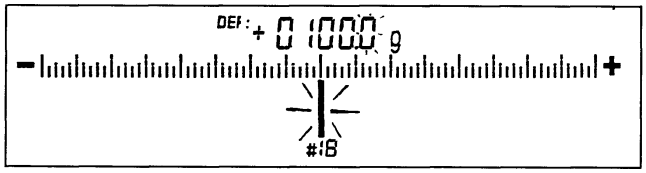
At the factory, we have set **code 1 1 3**.
If necessary, you can change this setting. To do so, please read pages 23 through 29.

How to enter a target weight using a sample on the weighing platform:



- Clear the weighing platform
- Press the **T** key to tare the scale
- Place your sample on the platform (if you do not place a sample on the weighing platform, the previous weight will be stored)
- Press the ⇨ key to store the weight.

Entering a numeric value for the target weight:



Five digits appear in the display - the last digit flashes.

- Press the ⇨ key to select the digit you wish to change.
- Press the ⇦ key to change the flashing digit.
- To store the target weight you have entered, press the ⇨ key. The program will automatically change to the next parameter (scale divisions in the display).

The error message "E3" will appear if:

- **the value of the target weight is negative, or**
- **the value entered is too large.**

Changing the Scale Divisions in the Display

If you do not wish to change the tolerance limits, it is not necessary to change the scale divisions (codes 1 1 5, 1 1 1). In this case, the scale will skip the following steps.

The user-definable scale divisions in the display allow you to spot off-weights easily.

Depending on the expected off-weights of the samples to be checkweighed, you can expand the analog display by selecting a lower number of the scale divisions.

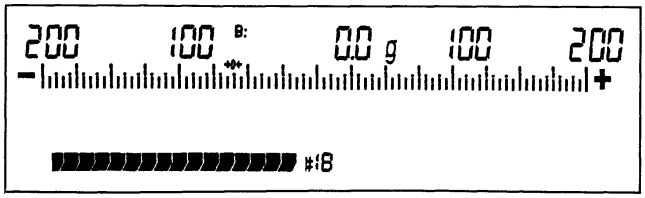
Possible settings:

	Weight unit in »g±	**Weight unit in »kg±**
TS 6100 B	± 20 g, ± 40 g, ± 80 g, ± 200 g	± 400 g, ± 800 g, ± 2 kg
TS 12	± 40 g, ± 80 g, ± 200 g	± 400 g, ± 800 g, ± 2 kg, ± 4 k g

Press the keys labeled or each time to increase or decrease the scale division settings.

To store a setting, press the key labeled ; the program will automatically change to the next parameter (tolerance limits).

Changing the "Under" Limit



Depending on the menu code setting in the scale operating program, you can enter the under limit either by storing the weight of a sample on the platform or by numerical entry.

The following menu codes can be set in the scale operating program:

Code	
1 1 1	Target weight by loading sample; retain same setting for over/under tolerance limits
1 1 2	Target weight by loading sample; over/under limits by loading underweight and overweight samples
1 1 3	Target weight by loading sample; over/under limits by numeric entries using keys
1 1 4	Not assigned
1 1 5	Target weight by numeric entry using keys; retain same setting for over/under tolerance limits
1 1 6	Target weight by numeric entry using keys; over/under limits by loading underweight and overweight samples
1 1 7	Target weight by numeric entry using keys; over/under limits by numeric entries using keys

How to enter the under limit using an underweight sample:

- Clear the weighing platform
- Press the **T** key to tare the scale
- Place the sample on the platform and
- Press the → key to store the weight.

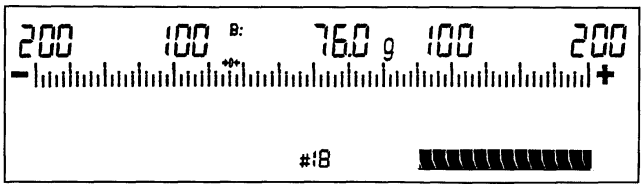
How to enter a numeric value for the under limit:

The analog range for the under limit will flash.

Starting with the limit previously set, enter the "under" limit as a deviation from the target weight.

- Use the keys labeled › and ‹ to enter the limit.
- Press the → key to store the numeric underweight you have just entered; the program will automatically change to the next parameter.

Changing the “Over” Limit



Depending on the menu code setting in the scale operating program, you can enter the over limit in one of two ways: either by storing the weight of a sample on the platform or by a numeric entry (see "Changing the Under Limit").

How to enter an over limit using an overweight sample:

- Clear the weighing platform
- Press the T key to tare the scale
- Place your sample on the platform (at this point, load the target weight and the tolerance weight to obtain an overweight sample) and
- store the weight with the → key.

How to enter a numeric value for an over limit:

The analog range for the over limit will flash.

Starting with the limit previously set, enter the over limit as a deviation from the target weight.

- Use the keys labeled → and ← to change the value.
- To store the "over" weight you have just entered, press the → key.

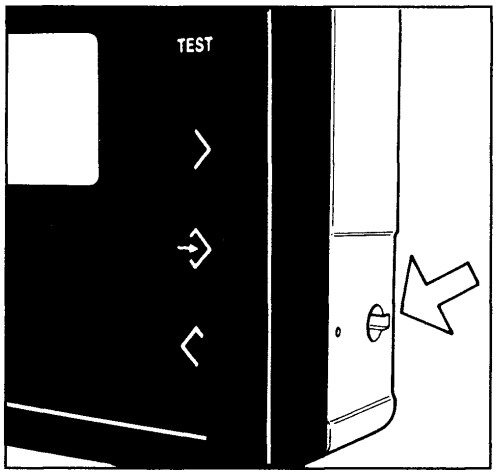
This completes the entry of product data; the program will automatically change to the weighing mode.

Calibration

This is only possible with an accurate calibration weight:
(see "Accessories")

Model	Calibration weight	Order number
TS 6100 B	5000 g	707213
TS 12	10000 g	707218

How to activate the calibration function:

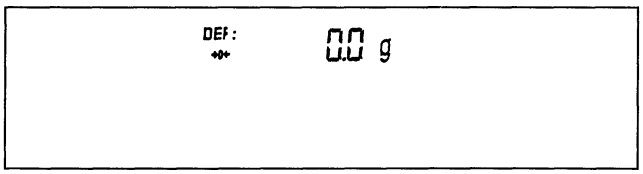


Insert the in the side of the display head.

Unload the weighing platform.

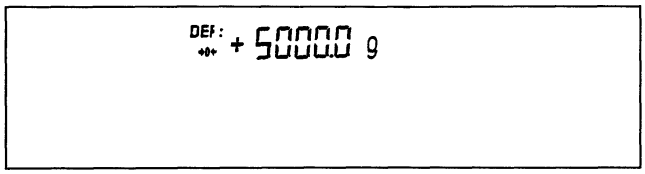
With the scale turned off, hold down the **T** key and briefly press the ON/OFF key **(8)**.

Once the readout appears, release the **T** key.



If **->0<-** does not appear below "DEF," tare the scale.

Then press the → key - the calibration weight will appear, i.e.:



Center the calibration weight on the weighing platform.

If "**+**" appears in front of the weight readout, the calibration weight is too light. If "**–**" is displayed, the weight is too heavy.

The plus/minus sign disappears if the calibration weight is accepted and an acoustic Signal indicates the end of the calibration procedure.
The "**+**" symbol reappears at this time, also.

Scale Operating Program

In order to access the scale operating program, you will need the .

The scale operating program enables you to change the menu code settings for the weight unit, the individual operating parameters for the scale, the display mode, Update rate and the data output parameter, including the parameter for the application mode.

At the factory, we have set the codes for the scale operating program so you do not need to make any changes if you only want to use the "over/under check weighing" mode under normal ambient conditions.

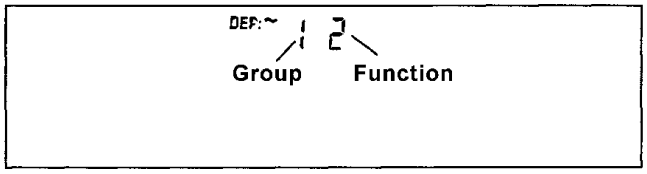
Any changes to the menu codes in the scale operating program will affect how the products are weighed.

To familiarize yourself with all of the performance capabilities this scale offers, why not try out a few menu code settings that sound interesting to you?

After all, you can always change them back to the original settings.

Use the "**codes**" to select the desired function in the menu of the scale operating program.

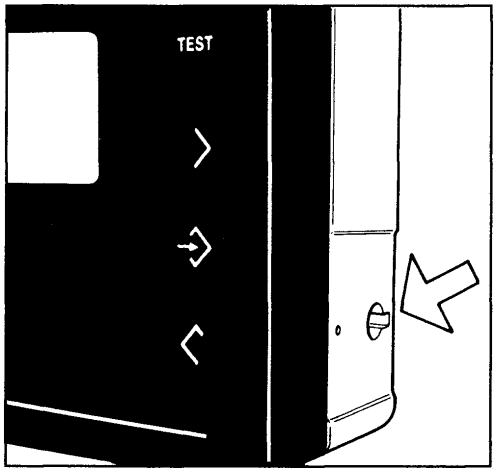
Each code consists of a left-hand number for the function group and a right-hand number for a function within a group.



Factory Settings

Code	1 — 1	7 — 2
	2 — 2	8 — 2
	3 — 3	9 — 14
	4 — 1	10 — 1
	5 — 5	11 — 3
	6 — 2	12 — 2

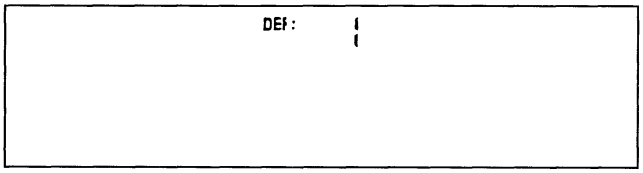
How to Access the Scale Operating Program



Insert the in the lock located on the side of the display head.

With the scale turned off, hold down the key and briefly press the key **(8)**.

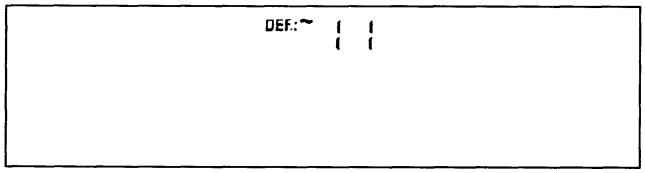
After the readout appears, release the ◁ key.



To check a menu code setting, select the desired function group using the ▷ or ◁ key.

Press the ⇨ key to access a particular function.

Now the numeric code for the function will be displayed. The function setting is identified by the symbol "~" that appears after "**DEF**."



Use the keys labeled ▷ and ◁ to select the desired function.

Use the ⇨ key to confirm the setting; the code will then disappear.

Now you can select the next function group.

Remove the key after you have finished entering the desired codes and **only a function group** is displayed. By doing so, you will leave the scale operating program and the code changes will be saved at the same time.

If you turn off the scale using the ON/OFF key while the scale operating program is accessed, none of the code changes will be stored.

The following pages will give you a list of the functions in the scale operating program.

List of the Programmable menu Code Settings

"*" = Factory setting

Code	Weight units	
1 1*	Grams	g
1 2	Kilograms	kg
1 3	Pounds	lb
1 4	Ounces	oz
1 5	Troy ounces	ozt
1 6	grams	**«0»**

If you change between grams and kilograms, the product weights stored will remain valid, but not if you change the code to other weight units.

Code	Acoustic Signal
2 1	Off
2 2*	On

Code	Application Mode for Weight Display
3 1	Digital weight readout only (weighing mode)
3 2	Over/under application without digital weight readout
3 3*	Over/under application with net weight readout
3 4	Over/under application with readout of the difference in weight (weight displayed = difference from the target weight)

Code	Ambient Conditions	
4 1*	Stable	(100 ms display update)
4 2	Stable to unstable	(200 ms display update)

Code	Stability Range	
5 1	0,25	digit
5 2	0,5	digit
5 3	1	digit
5 4	2	digits
5 5*	4	digits
5 6	8	digits
5 7	16	digits
5 8	32	digits

The motion detection symbol "~" will appear only if a change in weight beyond the defined number of digits is detected.

Code	Tare Parameter (Zeroing the Display)
6 1	Without stability control (the tare command is immediately executed)
6 2*	At stability (the tare command is stored until the scale has stabilized and is then executed)

Code	Auto-Zero
7 1	Off
7 2*	On

The scale features an automatic zero tracking function, known as "Auto Zero.
When this function is on, changes off zero ≤ 0.5 of a digit per second are set to zero automatically after the display is zeroed with the tare key.

Code	Data Output Parameter	Printout
8 1	Single print when key is pressed, regardless of stability	Actual weight
8 2*	Single print when key is pressed and readout is stable	Actual weight
8 3	Single print when key is pressed and weight readout is stable & within the display range	Actual weight
8 4	Auto print regardless of stability	Actual weight
8 5	Auto print when readout is stable	Actual weight
8 6	Auto print when the weight readout is in the display scale range and stable	Actual weight
8 7	Single print activated by load when readout is stable	Actual weight
8 8	Single print activated by load when readout is stable and within the display scale range	Actual weight
8 9	Single print when key is pressed, regardless of stability	Weight difference
8 10	Single print when key is pressed and readout is stable	Weight difference
8 11	Single print when key is pressed and readout is stable & within the display scale range	Weight difference
8 12	Auto print regardless of stability	Weight difference
8 13	Auto print when readout is stable	Weight difference
8 14	Auto print when readout is stable and within display scale range	Weight difference
8 15	Single print activated by load when readout is stable	Weight difference
8 16	Single print activated by load when readout is stable & within the display scale range	Weight difference

Single print	= Output of an individual weight
Auto print	= Automatic, continuous output of weights (can be stopped and started by pressing the print key)
Stability; stable	= The motion detection symbol is not displayed
Display scale range	= Analog display of the weighing range with user-definable scale divisions
Activated by load	= An individual value is output automatically when a load is on the platform and the scale has stabilized.

This procedure may be repeated once the weight is removed from the platform.

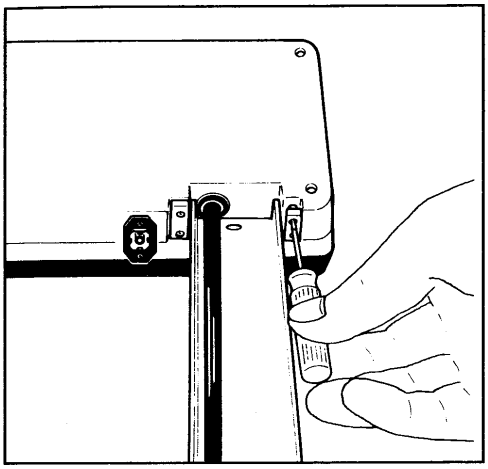
Code	Analog Display/Backlighting	
9 1	Marker	Backlighting off
9 2	Bar graph for sample weight	Backlighting off
9 3	Bar graph for weight difference	Backlighting off
9 4	Not assigned	
9 5	Marker	Backlighting on
9 6	Bar graph for sample weight	Backlighting on
9 7	Bar graph for weight difference	Backlighting on
9 8	Not assigned	
9 9	Marker	Backlighting off, LED on
9 10	Bar graph for sample weight	Backlighting off, LED on
9 11	Bar graph for weight difference	Backlighting off, LED on
9 12	Not assigned	
9 13	Marker	Backlighting on
9 14*	Bar graph for sample weight	Backlighting on, LED on
9 15	Bar graph for weight difference	Backlighting on, LED on

Code	Product Selection Mode
10 1*	Only with inserted key
10 2	Without key

Code	Entry Mode for the Target Weight and Limits
11 1	Target weight by loading sample; retain same setting for over/under tolerance limits
11 2	Target weight by loading sample; over/under limits by loading underweight and overweight samples
11 3*	Target weight by loading sample; over/under limits by numeric entries using keys
11 4	Not assigned
11 5	Target weight by numeric entry using keys; retain same setting for over/under tolerance limits
11 6	Target weight by numeric entry using keys; over/under limits by loading underweight and overweight samples
11 7	Target weight by numeric entry using keys; over/under limits by numeric entries using keys

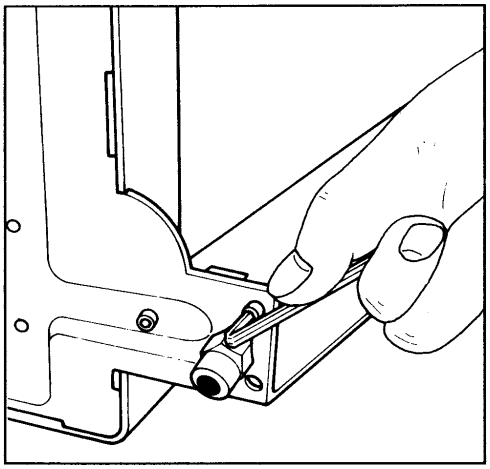
Code	RED/GREEN/YELLOW Indicators	
12 1	"RED" off when load approx. <5% of the target weight, weight readout at stability	
12 2*	"RED" on when load approx. <5% of the target weight, weight readout regardless of stability	
12 3	"RED" off when load approx. <5% of the target weight, weight readout at stability	
12 4	"RED" on when load approx. <5% of the target weight, weight readout at stability	LED only when readout is stable

Mounting Instructions

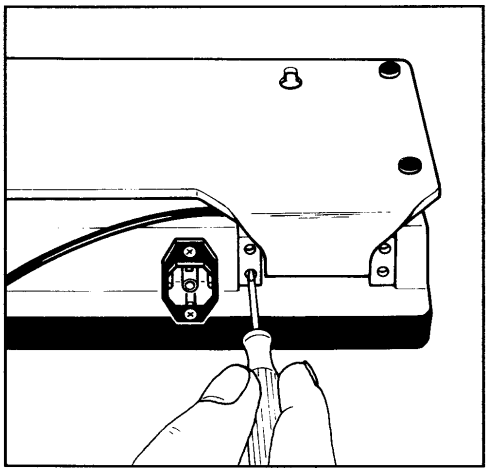


Changing the Display Mounting
(Raised Display to Remote Display)

— Loosen the cable clamp on the support arm
— Remove the retainer bars for the support arm from the display head
— Dismount the display head



— Remove the three screws from the support arm base plate
— Dismount the support arm



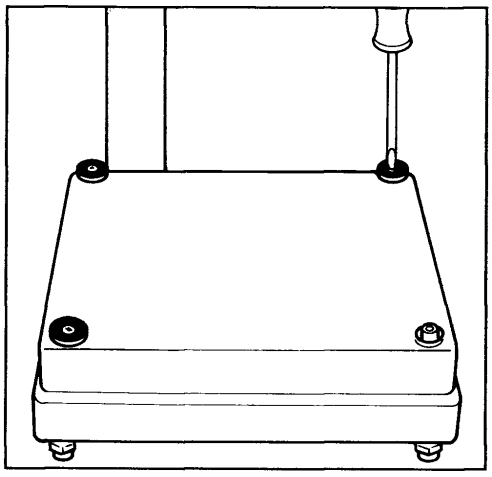
— Use the retainer bars to fasten the holder to the display head

How to Install the Interface Cable

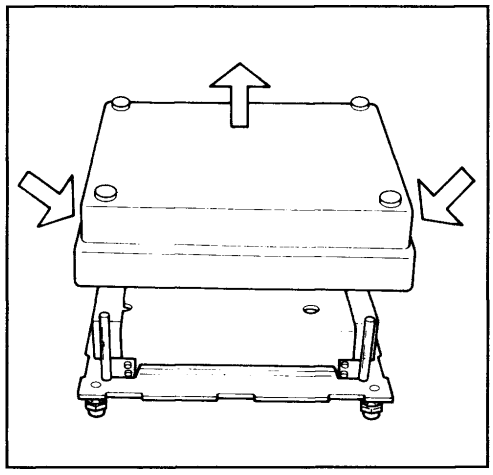
The interface cable should be installed only by a certified electrician.

Ask for separate instructions describing how to install the interface cable.

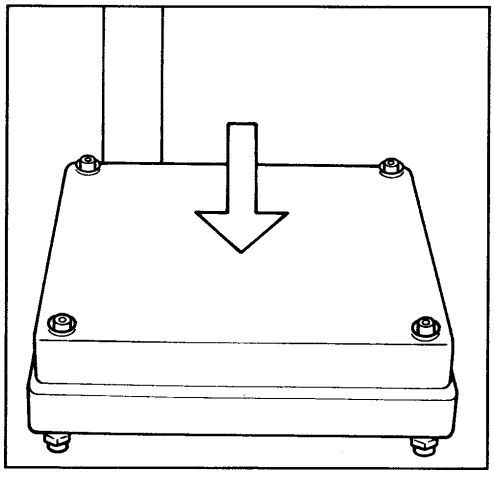
Changing the Scale Housing Cover



— Remove the weighing platform
— Unscrew the 4 platform support disks



— Gently pull the left and right sides of the scale housing cover outward and lift it off



— Place a new housing cover on the scale base, making sure that both sides snap in audibly
— Refasten the four platform support disks using the screws
— Reposition the weighing platform

Interface Description (Option)

If you wish to record weight data using the Sartorius Data Printer, just plug the printer connector Mo the interface port of the scale. You do not need to adjust any settings!
(You can also interface your scale with a Computer.)

General Specifications

Type of interface	Serial point-to-point connector
Operating mode	Asynchronous, simplex
Standard	V24-V28, RS232 C-S
Handshake lines	Clear to Send (CTS) Data Terminal Ready (DTR)
Initialization of the interface	External or automatic print command depending on the code selected (8 1 to 8 16)
Character coding	7-bit ASCII
Transmission rate	1,200 baud
Parity	Odd
Synchronization	1 Start bit, 1 stop bit
Additional port lines for over/under checkweighing	4, for upper/lower limits, tolerance range and target

Data Output Format

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
H	H	-	-	-	-	+ - -	-	-	Z	Z	Z	Z	Z	Z	Z	_	X	X	X	CR	LF

1st and 2nd characters:	Weight difference or net weight
3rd to 6th characters:	Space
7th character:	Plus or minus signor space
8th and 9th characters:	Space
10th to 16th characters:	Digit, space or decimal point
17th character:	Space
18th to 20th characters:	Letter or space
21st character:	Carriage Return
22nd character:	Line Feed

Data Output Parameters
(Codes **8 1** to **8 16**)

Data can be transferred to the output port depending on the particular stability state of the weighing system (stability parameter: stable readouts).

You can choose to have data transferred regardless of stability or only when the readout is stable.

If you opt to have data transferred only when the weighing system has stabilized, an output command will remain stored until the system has stabilized.

For the auto print setting (automatic data output), weight data are transferred continuously the moment you turn on the power. If you have additionally selected the stability parameter for this Option, only data for stable readouts will be output. To stop and start automatic data transfer, press the print key.

Each signal received by the RxD line will initiate data transfer (external data request).

Interfacing Devices with the Scale (RS Interface)

Make sure that the interface port is electrically connected to the scale housing. The interface cable supplied as an optional accessory is shielded and must be installed so that the interface end is electrically connected to the housing. This electrical connection may result in interference caused by ground loops or by transient currents if you have grounded the housing or connected the protective grounding conductor for AC power. If necessary, connect an equipotential bonding conductor to the scale.

Pin Assignment for the Interface

Female Interface Connector:

25-position D-submini DB25S with screw lock hardware for the cable gland

Male Connector Required:

25-pin D-submini DB25S with integrated shielded cable clamp assembly (Amp type 826 982-1) and fastening screws (male screws for female screw lock, Amp type 164 868-1)

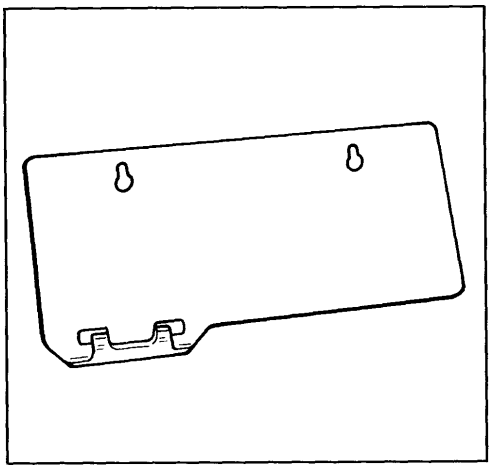
Pin Assignment

		Designations		Direction	Standard Level
Pin	1:	Protective Ground			
Pin	2:	Data Output (TxD)		Output	RS323
Pin	3:	Data Input (RxD)		Input	RS232
Pin	4:	Not Connected			
Pin	5:	Clear to Send (CTS)		Input	RS232
Pin	6:	Not Connected			
Pin	7:	Internal Ground			
Pin	8:	Internal Ground			
Pin	9:	Not Connected			
Pin	10:	Not Connected	Print/Tare*)		
Pin	11:	+12 V		Output	(50 mA max.)
Pin	12:	Reset		Output	TTL
Pin	13:	+5 V		Output	(50 mA max.)
Pin	14:	Internal Ground			
Pin	15:			Input	open Collector
Pin	16:	Low Signal		Output	LS-TTL
Pin	17:	OK Signal		Output	LS-TTL
Pin	18:	High Signal		Output	LS-TTL
Pin	19:	Set Signal		Output	LS-TTL
Pin	20:	Data Terminal Ready (DTR)		Output	RS232
Pin	21:	Not Connected			
Pin	22:	Not Connected			
Pin	23:	Not Connected			
Pin	24:	Not Connected			
Pin	25:	+5 V		Output	(50 mA max.)

*) Print or tare (have this parameter implemented or changed by a Sartorius service technician)

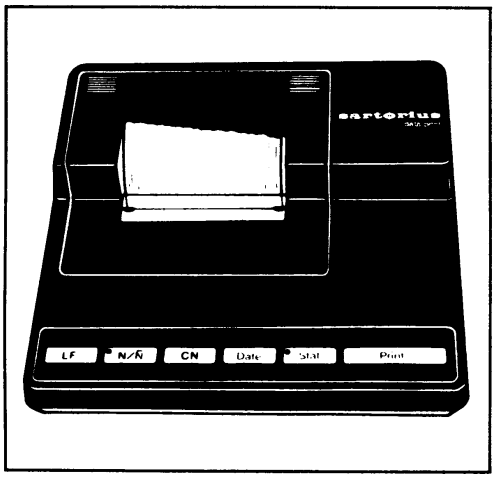
Options and Accessories

Options



Interface (for connecting a data printer or a PC)	YDO 01 TS
Display holder for benchtop or wall mounting	YDH 01 TS
Spacer feet for lifting the scale by about 8 cm (3")	YAS 01 TS- 00 000 V 001
Spare scale housing cover	69 T 00001

Accessories



Data printer with date/time & statistics functions Print speed approx. lines/sec. 1.5 Printer housing (W x D x H) in mm 150x138x43 in inches 5.9x5.4x1.7	YDP 02-0DV1

Calibration weight for TS 6100 B	707213
Calibration weight for TS 12	707218

Specifications

Model		TS 6100B	TS 12
Capacity	g	6,100	12,100
Readability	g	0.5	1
Tare range (by subtraction)	g	-6,100	-12,100
Standard deviation	g	≤ ± 0.5	≤ ± 1
Max. linearity	g	≤ ± 0.5	≤ ± 1
Stabilization time (typical)	s	1.1	
Display Update – when the readout stabilizes (depends on the filter level selected) – when the load changes	s s		0.1/0.2 0.1
Adaptation to application requirements and ambient conditions			By selection of one of 2 optimized filter levels
Stability range	d		0.25 ... 32 (selectable)
Ambient temperature range	K		273 — 313 (0°C...+40°C) (32°F … 104°F)
Moisture-proof rating acc. to DIN 40040			Class F, non-condensing
Dust and water protection rating in conformance with DIN 40050/IEC529			IP65
Sensitivity drift within 10...30°C	/°C		$\leq \pm 2.5 \cdot 10^{-6}$
Platform size	mm in.		260 x 210 10.2 x 8.4
Scale housing (W x D x H)	mm in.		260 x 295 x 110/450 10.2 x 11.6 x 4.3/17.7
Net weight, approx.	kg ~lb		6.5 14.3
Power requirements (voltage + frequency)			115 or 230 depending on the type of power supply used; 50-60 Hz
Allowable voltage fluctuation			-20% ... +15%
Power consumption (typ.)	VA		14

Troubleshooting Guide

Problem …	**Causes …**	**Solution**
No segments appear in the weight display **(7)**	- No AC power available - The power supply is not plugged in	- Check AC power supply - Plug in power supply
Display shows **"L"**	- The weighing platform **(5)** is not in place	- Position the platform
Display shows **"H"**	- The load exceeds the capacity of the scale	- Unload the scale
The weight readout changes constantly	- Unstable ambient conditions - Too much Vibration or the scale is exposed to a draft	- Set up the scale in another area - Access the menu to select the proper code for the particular type of weighing environment
Display shows **"EO"**	- The platform was not empty during calibration	- Clear weighing platform and repeat calibration procedure
The weight readout is obviously wrong	- The scale has not been calibrated - The scale has not been tared before weighing	- Calibrate the scale - Tare before weighing

Care and Maintenance

Clearing

Wash down the scale with cleaning agents that you commonly use in the food industry.

Important Note:

Featuring the IP 65 protection rating (approximately equivalent to NEMA 4), the scale is dust-tight and washdown-resistant. See the "Test Mark Award Certificate" issued by the TÜV, the German Association for Technical Inspection.

Safety Inspection

If there is any indication that safe Operation of the scale with the power supply is no longer warranted, turn off the power and unplug the scale from the power supply immediately. Lock the scale in a secure place to ensure that it cannot be used for the time being.

In this case, notify your nearest Sartorius Service Center or the International Technical Support Group based in Goettingen, Germany. Only Sartorius service technicians who are authorized by Sartorius and have the proper manuals are allowed to perform maintenance and repair work on the scale.

Safe Operation of the scale with the power supply is no longer ensured when

- there is visible damage to the power supply
- the power supply no longer functions properly

We recommend that the scale and power supply be inspected according to the following checklist by a qualified Sartorius service technician:

- Leakage current <0.05 mA measured by a properly calibrated multimeter
- Insulation resistance >7 megohms measured with a constant voltage of at least 500 V at a 500 kohm load.

The duration and number of measurements should be determined by a qualified Sartorius service technician according to the particular ambient and operational conditions. However, such inspection should be done at least once a year.

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